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PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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19. April 2004

TBK-PATENT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year)

16.04.2004

Applicant's or agent's file reference
WO 32587

IMPORTANT NOTIFICATION

International application No.
PCT/EP 02/00598

International filing date (day/month/year)
22.01.2002

Priority date (day/month/year)
22.01.2002

Applicant
NOKIA CORPORATION et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step, and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



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PATENT COOPERATION TREATY

PCT


INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

EINGEGANGEN

19. April 2004

TBK - PATENT

Applicant's or agent's file reference WO 32587		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 02/00598	International filing date (day/month/year) 22.01.2002	Priority date (day/month/year) 22.01.2002	
International Patent Classification (IPC) or both national classification and IPC H04Q7/38			
Applicant NOKIA CORPORATION et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 15 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand 22.08.2003		Date of completion of this report 16.04.2004	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Delucchi, C Telephone No. +49 89 2399-7305	



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP 02/00598

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-4, 9-25 as originally filed
5-8 received on 02.02.2004 with letter of 02.02.2004

Claims, Numbers

1-52 received on 02.02.2004 with letter of 02.02.2004

Drawings, Sheets

1/7-7/7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP 02/00598

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-52
	No: Claims	
Inventive step (IS)	Yes: Claims	1-52
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-52
	No: Claims	

2. Citations and explanations

see separate sheet

Concerning Item I

Basis of the opinion

1. This preliminary examination report is based on **claims 1-52** filed with letter of 02.02.2004 which have been found to fulfil the requirements of Article 34(2)(b) PCT.
2. Reference is made to the following documents:
D1: WO 00 38469 A (ERICSSON TELEFON AB L M) 29 June 2000
D2: WO 99 52306 A (NOKIA MOBILE PHONES LTD ;HONKASALO ZHI CHUN (FI); KALLIOKULJU JUHA) 14 October 1999 (1999-10-14)
D3: PLASSMANN D: 'Location management strategies for mobile cellular networks of 3rd generation' VEHICULAR TECHNOLOGY CONF., 1994 IEEE 44TH STOCKHOLM, SWEDEN 8-10 JUNE 1994, NEW YORK, NY, USA, IEEE, 8 June 1994, pages 649-653, XP010123353 ISBN:0-7803-1927-3

Concerning Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Having regard to the documents cited in the International search report the subject-matter of **claims 1-52** appears to meet the requirements of Article 33(1) PCT in respect of **novelty, inventive step and industrial applicability**.
- 1.1 The invention according to **claim 1** defines a **method of adjusting mobility management** in a mobile communication network. For this purpose, **mobility information** related to a communication unit is *provided*, **the degree of mobility is evaluated**, and in case the evaluation indicates the **immobility** of said communication unit, **values of timer elements** are *adjusted* to a **maximum timer value** or to **timer value** being higher than a default timer value if said network, said **timer elements** defining a **time period** of a ready state and/or a **time period** for performing a location update for said communication unit.

The closest prior art is found to be document **D1**, which discloses an **apparatus and method for providing page messages to mobile radios** based on the

mobility rates of the mobile radio. A function is defined for location updating on either a locationary basis or a cell basis in accordance with certain factors in order to optimize the burden of location area updating and unwanted page broadcasting. The *mobility rate* is determined on the basis of the frequency of location updating performed by the mobile station (page 5, lines 7-10). For the purpose of reducing the signalling load, a respective registration level (cell-based or location area-based) is defined which is allocated to the mobile stations for preselecting the region into which the paging is performed.

Departing from **D1**, the **technical problem** to be solved by the claimed invention can be formulated as **how to reduce the frequency of the location updates**.

For solving the above mentioned problem, the invention of the present application defines in **claim 1** a **method** that adjusts **values of timer elements** to a **maximum timer value** or a **timer value** higher than a default timer value of the communication network, said **timer elements** defining a time period of a ready state of said communication unit and/or a time period for performing a location update for said communication unit.

With the present invention, it is possible to advantageously decrease location updates and with it also signaling load with regard to the MM processing in mobile communication networks.

Since **D1** does not disclose the above mentioned features, **independent claim 1** is considered novel over **D1** as required by Article 52 (1) and (2) EPC.

Since **no suggestion or hint** can be found neither in **D1** nor in the remaining available prior art which would lead the skilled person to modify the method/system disclosed in **D1** to solve the problem of *reducing location updates* by *providing an adjusting of timer elements to certain maximum values*, the subject-matter of **claim 1** is inventive over the available prior art as required by Article 33(3) PCT.

This solution is considered moreover as being inventive, since the defined steps are non-obvious for the person skilled in the art when departing from the available prior art and common knowledge in the technical field.

- 1.2 The same reasoning as for **claim 1** applies to **independent claims 15, 29 and 34**, which respectively define a **mobility control unit**, a **communication unit** and a **mobility management adjustment system** for carrying out the **method** according to **claim 1**.

As a consequence, the subject-matter of **independent claims 15, 29 and 34** also meet the requirements of the PCT with respect to **novelty and inventive step** as required by Article 33(1) PCT.

- 1.3 **Dependent claims 2-14, 16-28, 30-33 and 35-52** are dependent on **independent claims 1, 15, 29 and 34** and as such also meet the requirements of the PCT with respect to **novelty and inventive step** (Article 33(1) PCT).

- 1.4 The invention as defined/claimed by **claims 1-52** is obviously **industrially applicable** (Article 33(4) PCT).

2. Notwithstanding the positive opinion on the **novelty, inventive step and industrial applicability** of the present **claims 1-52**, the application does not meet the requirements of Article 6 PCT, due to the following clarity objections.

- 2.1 Some of the features in **claim 16** (lines 21), **claim 17** (line 30), **claim 18** (line 1), **claim 26** (line 7), **claim 27** (line 11), **claim 28** (line 15), **claim 35** (line 25), **claim 36** (line 34), **claim 45** (line 12), **claim 46** (line 17) and **claim 47** (line 21) are formulated in terms which correspond to a method (e.g. "*said means adapted to evaluate detects said periodic update timer*", etc) rather than clearly defining the apparatus in terms of its technical features (e.g. "*said means adapted to evaluate is further adapted to detect said periodic update timer*").

- 2.2 It appears that **claim 47** should have been directed to a **mobility management adjustment system** according to any of **claims 34 to 44** instead of the present **mobility control unit**.